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ABSTRACT

A comparison of telephone and mail surveys of accepted applicants who chose not to attend Virginia Polytechnic Institute and State University was undertaken. The telephone method was used to interview the undergraduate applicants' parents, while the mail survey was sent to graduate school applicants. The telephone survey concerned 161 in-state applicants, while the mail survey was completed by 728 applicants. The anonymous mail survey was found to have the potential to reach a large proportion of the population at a low unit cost and was considered likely to avoid a social desirability bias and interviewer distortion. When rapid completion of the study is not essential, a mail questionnaire may be the better vehicle for the survey. A high response can be be expected from a skillfully administered telephone survey on a topic that is not very sensitive and controversial, and the entire study can be completed in a relatively short time. In addition to limiting the depth and complexity of questioning, the personal contact in the telephone survey can infuse social desirability bias into the study. The costs of both survey methods were generally equal. The survey instruments are appended. (SW)

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APPLIED MARKETING RESEARCH IN HIGHER EDUCATION: THE USE OF TELEPHONE AND MAIL SURVEYS TO STUDY APPLICANTS WHO DID NOT ENROLL

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This paper was presented at the 1984 Annual Conference of the Southern Association for Institutional Research held in Little Rock, Arkansas, October 24-26, 1984. It was reviewed by the SAIR Publications Committee and was judged to be of interest and pertinent to others concerned with the research in higher education. This paper has therefore been selected to be included in the ERIC collection of Conference Papers.

Richard D. Howard
President, SAIR

Applied Marketing Research in Higher Education:
The Use of Telephone and Mail Surveys to Study
Applicants Who Did Not Enroll

Abstract

To develop a better understanding of the student marketplace at Virginia Tech, studies were made of accepted applicants who did not enroll. Telephone and mail surveys were used to gather information about factors that were important to both graduate and undergraduate applicants in their selection of colleges. These data are being used to identify applicant concerns and preferences and to develop a comprehensive marketing plan for the university.

This paper includes a review of the process and some suggestions for conducting this type of marketing research. The advantages and disadvantages of telephone and mail survey methods are presented. The application of research results in the development of a comprehensive marketing strategy also is discussed.

Applied Marketing Research in Higher Education: The Use of Telephone and Mail Surveys to Study Applicants Who Did Not Enroll

Colleges and universities continue to be concerned about declining enrollments and increasing competition for students. In this competitive environment, an institution should seek to understand its position in the student marketplace. Based upon this understanding, an institution can develop a comprehensive marketing strategy to compete effectively for students. Institutional researchers can contribute to the development of this strategy by conducting applied marketing research to provide information that will help the institution understand consumers' concerns and perceptions of the institution.

Comprehensive market research for an institution should include at least three components. First, research should be directed at determining the factors that influence potential applicants to apply or not apply for admission to the institution. Second, studies should be focused on those students who enrolled at the institution and the factors that influenced their decision to attend. Third, studies should be conducted on accepted applicants who chose not to attend the institution; this research should identify the factors that influenced their selection of other institutions, if any. The third component is the focus of this paper, which will compare the use of mail and telephone surveys in this type of marketing research.

Many studies have been done on undergraduate and graduate students who have attended higher education institutions, but relatively few studies have focused upon those accepted applicants who did not attend. By improving its yield of accepted applicants who actually enroll, an institution can seek to maintain its enrollment without lowering admission standards. Clearly, it

would be useful to study accepted applicants who did not enroll, and we already know two things about them. First, they were interested in attending; they applied for admission, submitted test scores, transcripts, and application fees, and in many cases applied for financial aid. Second, they were qualified to attend; we had accepted them for admission. Therefore, we know that these are people who wanted to attend our institution and we wanted them to attend, but they did not enroll and we must seek to learn why.

Methodology

In studying accepted applicants who did not enroll at Virginia Tech, we needed to conduct some type of survey to gather information from these applicants. The advantages and disadvantages of mail and telephone surveys were examined. A comparison listing of basic factors about the two survey methods is displayed in Table 1.

According to Dillman (1978), advantages of the telephone method include (a) control over selection of respondents within sampling units, (b) high response rate, and (c) speed of implementation. With the expected high response rate, a small sample size could be utilized and, consequently, the cost of the survey was estimated to be reasonable. While the limited complexity of questions is a drawback of the telephone method, we did not consider this characteristic to be a limitation for the type of information we would be seeking. Therefore, we considered the telephone interview to be a viable method for surveying applicants to our undergraduate programs (IRPA, 1984a).

In conducting a telephone survey during the academic year, we chose to interview the undergraduate applicants' parents. We assumed that most of

Table 1

RATING OF SELECTED CHARACTERISTICS FOR
MAIL QUESTIONNAIRES AND TELEPHONE INTERVIEWS

	MAIL	TELEPHONE
1. Control over selection of respondents within sampling units.	0	+
2. Response rate.	0	+
3. Likelihood that unknown bias from refusals will be avoided.	-	+
4. Allowable complexity of questions.	0	-
5. Success with open-ended questions.	-	+
6. Success in avoiding item nonresponse.	0	+
7. Likelihood that social desirability bias can be avoided.	+	0
8. Likelihood that interviewer distortion and subversion can be avoided.	+	0
9. Potential speed of implementation.	-	+
10. Overall potential for low per-interview cost.	+	0

KEY:

\+ Positive, good
0 Neutral, fair
\- Negative, poor

Dillman, D. A. (1978). Mail and telephone surveys: The total design method. New York: Wiley & Sons.

the applicants who did not attend Virginia Tech did attend other institutions. (This assumption later was substantiated by the results of our survey.) Under this assumption, attempting to interview the applicants would have required an additional step to acquire the students' campus telephone numbers.

We also assumed that parents are integrally involved in the process of selecting a college, since this decision is a major consumer purchase costing thousands of dollars. Previous research at Virginia Tech had shown that parents were substantially influential regarding the student's choice of a college (IRPA, 1983). However, we contended that even if the parents did not participate in the decision-making process, they at least would know the major factors that influenced the decision. Therefore, we chose to call the applicants' parents.

For surveying applicants to graduate programs, the telephone method was not feasible. We expected that there would be considerable difficulty in acquiring current telephone numbers for graduate applicants. We also expected that parents of these graduate applicants would be less likely to know the factors that influenced selection of a graduate school. Therefore, a mail questionnaire was utilized in surveying the graduate applicants (IRPA, 1984b). With the mail questionnaire, we anticipated potentially low per-unit cost and greater likelihood of avoiding interviewer distortion (see Table 1). However, we also expected the disadvantages of (a) a lengthy process, (b) a mediocre response rate, and (c) less likelihood that unknown bias from nonrespondents would be avoided.

In developing the mail and telephone survey instruments, we first determined what kind of information we would seek from applicants. Question targets were derived from the literature on student recruitment (Cook &

Zallocco, 1978), from previous research on enrolled students at Virginia Tech (IRPA, 1983), and from administrative, research and admissions personnel at Virginia Tech. Pooling input from these sources, we determined the specific information to be gathered and the kinds of questions to be asked. Dillman's Mail and Telephone Surveys: The Total Design Method (1978) was helpful in the construction of the instruments and, overall, was a useful guide for the complete survey process.

In the following sections, the undergraduate telephone survey and the graduate mail survey will be examined separately and then will be compared. Utility of the data and results also will be discussed.

Telephone Survey of Applicants to Undergraduate Programs

Telephone interviews were used to survey the parents of in-state applicants who were accepted by Virginia Tech (for enrollment in Fall 1983) but who chose not to attend. All telephone calls were made during a one-week period in January, 1984.

The telephone survey instrument did not include standard demographic data. Since these applicants had completed the admissions process, the University had already collected these data, including their financial need information if a financial aid application had been completed. The availability of these demographic data substantially reduced the number of questions required in the telephone survey instrument.

A data processing component was utilized in producing the instrument for the telephone survey. Once the basic instrument was completed, we printed it by computer, generating a customized instrument for each individual in the sample. Each copy of the instrument had the individual's

name, telephone number, and other terms and pronouns with the appropriate gender. Using this personalized format facilitated a smoother, more relaxed interview. An example copy of the telephone survey instrument is included in Appendix A.

Sample and Response Rate

The telephone survey was directed toward in-state applicants only. The population consisted of 2,076 in-state applicants who were accepted but did not enroll for the Fall 1983 term. From this population we selected a random sample stratified by university college. A minimum of 20 responses was required in each college except Engineering and Arts & Sciences, in which the quota was 30. The resulting sample was 162 applicants. With only one individual who chose not to respond, the response rate was 99%.

Analyses

Data gathered in the telephone interviews were combined with admissions data for each applicant and with characteristics for the institutions these applicants attended. The data were analyzed using methods cited by Cochran (1963). The responses to the survey were used to estimate the proportions of the population which fall into particular subpopulations. These estimates were weighted for the responses in each university college. Finite population corrections were used in calculating these estimates to correct for the large proportions of the population sampled in some of the colleges.

Mail Survey of Applicants to Graduate Programs

A mail questionnaire was used to survey accepted applicants who did not enroll in the Graduate School in Fall 1983. The questionnaire was mailed in November, 1983, using the most recent addresses given to the Graduate School by the applicants.

While the purpose of the study was to determine why accepted applicants did not enroll at Virginia Tech, the study also included specific examination of (a) why applicants who enrolled elsewhere chose another university instead of Virginia Tech, and (b) why applicants who did not enroll elsewhere chose not to attend Virginia Tech. Since the respondents were anonymous, it was necessary to include questions in the survey to gather demographic data. These data included degree level and curriculum to which the applicant applied, state of residence, country of citizenship, ethnic group, and graduation year of last degree earned. The mail survey instrument is included in Appendix B.

Sample and Response Rate

Of the 1,068 accepted applicants who did not enroll in Fall 1983, 810 applicants to on-campus programs had current addresses in the United States, and this study was directed to these applicants. Eighty-two of 810 questionnaires mailed were returned as undeliverable by the U.S. Postal Service, yielding an effective sample of 728 applicants. As stated previously, responses were anonymous, and follow-up mailings were not utilized in this survey. The overall response rate was 52%.

Analyses

Frequency counts and percentages were used to analyze information from the one-page instrument. Analyses were conducted for the whole university and by university college. Inferential statistical procedures utilized in the analysis of data from the telephone survey were not used for the mail survey data because the entire population of graduate nonenrollees was surveyed. Specifically, the study was limited to the 810 nonenrollees defined previously. While the survey sample was indeed the population of nonenrollees, it is not certain whether the responses were representative of the group of nonrespondents.

Telephone vs. Mail Survey

In the telephone survey, we contacted 162 individuals and used 24 person/hours of staff time to make the calls. Consequently, the calls could have been made, for example, by four people working two hours per night for three nights. Actually, we involved a few more people and used seven callers who made 20 to 30 calls each over a period of several nights. Most calls were made in the evening from 7:00 to 9:00 p.m. A few calls were made on one Saturday afternoon. Each interview involved approximately 12 questions, some of which were open-ended, so that the calls lasted about four or five minutes. The total telephone bill for contacting 162 people was $335, approximately $2 per interview. With the high response rate and control over selection of respondents within sampling units, a smaller sample could be used in the telephone survey as compared to the mail survey.

The estimated basic unit cost for the mail survey is at least $.55, which includes the photocopied instrument as well as first-class postage and envelopes for both outgoing and return mail. The cost of follow-up mailings is not included. Therefore, the basic cost for using 810 mail questionnaires at $.55 each is $445.50. As described previously, however, the questionnaire was mailed to the entire graduate population under study, as compared to contacting only approximately eight percent of the undergraduate population in the telephone survey.

If the costs are generally equal for developing the two types of instruments and ultimately for analyzing the data, then the other important costs to consider involve time. In our telephone survey, the calling involved 24 person/hours of staff time, an expensive commodity. This cost can be lowered by the use of part-time, temporary employees as interviewers, but the use of novice interviewers substantially increases the risk of interviewer distortion. Therefore, the cost of training novice interviewers must be considered in the selection of this alternative.

Whether regular staff or temporary employees are used, interviewers must be well trained in the use of neutral probing, factual recording, and other important interviewing concepts. Proper handling of telephone contact with the public also is important to the image of the institution. Such personal contact can enhance the image of the institution by indicating that the institution cares about the applicant's opinions and feelings. Furthermore, interviewers must be able to handle respondents' extraneous questions or unusual circumstances. Even in the small sample for our survey, one interviewer contacted a parent whose son had been killed in an automobile accident shortly after high school graduation. Under these kinds of conditions, the institution's reputation may depend upon the tact and

judgment of the interviewers. Ultimately, the success of a telephone survey is at least partially dependent upon both the skill and professionalism of the interviewers.

While the opportunity for personable contact with the public can be advantageous to the institution, the problem of socially desirable responses is a significant danger in nonanonymous telephone surveys. We suspect that questions about financial factors held the greatest potential for social desirability bias. Consequently, our interpretation of data and results regarding financial factors reflected the potentially unreliable nature of these data. It is important to note that at the conclusion of the telephone survey our staff met to discuss the research and to suggest revisions for the survey instrument. Therefore, we expect to revise and improve the original instrument (Appendix A) before using it again.

A final point of comparison between telephone and mail surveys is the total implementation time. The undergraduate telephone survey was designed, conducted, and reported to the administration during the period that we waited for the mailed responses in the graduate survey. Therefore, the mail survey process is long and may not provide information to the institution on as quickly and timely a basis as the telephone survey.

Results and Conclusion

A comparison of mail and telephone survey methods in the study of nonenrollees at Virginia Tech revealed advantages and disadvantages for each method. A high response rate can be expected from a skillfully administered telephone survey on a topic that is not very sensitive or controversial, and the entire study can be completed in a relatively short time period. Although the personal contact in a nonanonymous telephone survey can enhance

the image of the institution, such personal contact also can infuse social desirability bias into the study. In addition, the allowable depth and complexity of questioning is limited in the telephone survey.

While involving a more lengthy process, the anonymous mail survey has the advantages of (a) potential to reach a large proportion of the population at a low unit cost and (b) likelihood of avoiding social desirability bias and interviewer distortion. Consequently, when rapid completion of the study is not essential, a mail questionnaire may be the better vehicle for the survey.

Regardless of which survey method is used, the analysis of data generated by the study of nonenrollees can reveal valuable information about the factors that affected these accepted applicants' selections of colleges. Information-based decisions then can be made about modifying the marketing approach or student recruitment strategies of the institution. Additional emphasis on certain aspects of the institution or special attention to certain concerns of this part of the applicant pool may be used to bring about an increase in the percentage of accepted applicants who actually enroll at the institution.

The surveys described in this paper do not constitute a complete market research program for an institution. The study of nonenrollees must be utilized in conjunction with information about the accepted graduate and undergraduate applicants who <u>did</u> enroll. In addition, a comprehensive marketing research program must address the perceptions and concerns of <u>potential</u> applicants. Applied research in these three areas can provide the basis for development of a comprehensive marketing strategy designed (a) to increase the number of potentially qualified applicants who apply for admission and (b) to maximize the number of accepted applicants who actually enroll.

According to Cook and Zallocco (1983), universities must become more knowledgeable about the marketplace and find ways to apply sound marketing concepts to their operations. Whether gathering data by telephone or by mail, the study of accepted applicants who did not enroll will contribute to a better understanding of the student marketplace.

Appendix A

Telephone Survey

Telephone 999 999 9999 Student's ID: 000000000

Hello. Is this the Smith residence?

If NO. TERMINATE (I am sorry I have the wrong number.)

May I speak with Mr. or Mrs. Smith please. Mr./ Mrs. Smith, my name is John Doe, and I am calling from Virginia Tech in Blacksburg. The University is conducting a survey and you were selected because your DAUGHTER, Linda, applied and was accepted at Virginia Tech but did not enroll. We obtained your telephone number from HER college application. I would appreciate your cooperation in answering a few simple questions. The survey will take less than 5 minutes of your time. Your answers will help the University understand why well-qualified students like your DAUGHTER decide not to attend Virginia Tech.

Will you cooperate in this survey?

If NO. Persist and offer to call back at a later time.

++

TELEPHONE LOG

Date of call: _____ Time: _____ a.m. or p.m.

Length of call:_____ Respondent: Male Female

Call back information: Date _____ Time _____

Other Information:_____

_____

_____

_____

College : Arts & Sciences

Thank you! If you have any questions about the survey, I will be happy to answer them either now or later.

1. Your DAUGHTER was obviously well prepared for college.
   Did SHE attend another college
   during the fall term? YES NO DON'T KNOW NR

   YES → GO TO 2

   NO / DON'T KNOW / NR → GO TO 16, ON PAGE 4

2. Which college did your DAUGHTER attend? _____

   _____

3. Is SHE enrolled as a full-time student
   during the fall term? YES NO DON'T KNOW NR

4. During the fall term, did your daughter
   live at home? (If not obvious) YES NO DON'T KNOW NR

5. Was (name of college)'s location
   a major factor in HER decision to
   attend there? YES NO DON'T KNOW NR

   YES → 6

   NO / DON'T KNOW / NR → GO TO 7

6. What did SHE like best about
   (name of college)'s location? _____

   _____

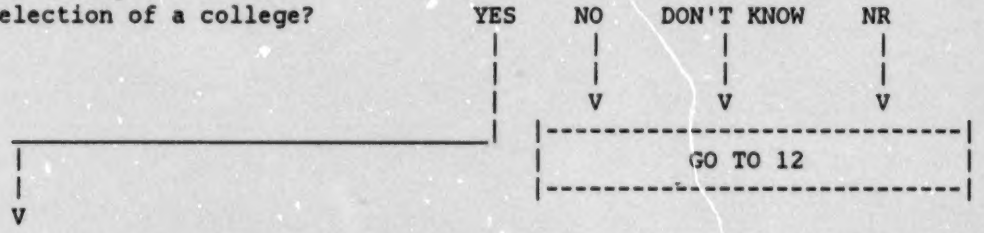
7. Did (name of college)'s size influence
   HER decision to attend there? YES NO DON'T KNOW NR

8. Did Virginia Tech offer an academic
   program in which SHE was interested? YES NO DON'T KNOW NR

My next question concerns the cost of attending college. These costs include tuition and fee charges, room and board charges, and the cost of text books and other supplies.

9. Was cost a major factor in the selection of a college?

YES NO DON'T KNOW NR



10. In comparing the cost of attending (name of college) and the cost of attending Virginia Tech, was Virginia Tech

____MORE EXPENSIVE
____LESS EXPENSIVE
____ABOUT THE SAME COST ?
____Don't know
____No Response

11. If the cost had been lower, do you think your DAUGHTER would have attended Virginia Tech?

YES NO DON'T KNOW NR

12. My next two questions concern financial aid, by which I mean scholarships, grants, guaranteed student loans, and work-study programs.

During the fall term, is your DAUGHTER receiving financial aid, while attending (name of college)? YES NO DON'T KNOW NR

13. Was your DAUGHTER offered financial aid by Virginia Tech? YES NO DON'T KNOW NR

14. Were you satisfied with the way Virginia Tech processed your DAUGHTER's application? YES NO DON'T KNOW NR

15. What was the most important factor in Linda's decision to attend (name of college)?

_____

_____

Mr./Mrs. Smith, THANK YOU for your cooperation. Have a pleasant evening. Goodbye.

******* THESE QUESTIONS ARE FOR STUDENTS NOT ENROLLED IN COLLEGE ********

16. Did Virginia Tech offer an academic program in which SHE was interested?

YES NO DON'T KNOW NR

My next question concerns the cost of attending college. These costs include tuition and fee charges, room and board charges, and the cost of text books and other supplies.

17. Was cost a major factor in the decision not to attend college this year?

YES NO DON'T KNOW NR

My next question concerns financial aid, by which I mean scholarships, grants, guaranteed student loans, and work-study programs.

18. Was your DAUGHTER offered financial aid by Virginia Tech? YES NO DON'T KNOW NR

19. Of the colleges SHE considered attending, was Virginia Tech HER first choice?

YES NO DON'T KNOW NR

20. Does your DAUGHTER plan to attend college next year? YES NO DON'T KNOW NR

21. Were you satisfied with the way Virginia Tech processed your DAUGHTER's application?

YES NO DON'T KNOW NR

Mr./Mrs. Smith, THANK YOU for your cooperation. Have a pleasant evening. Goodbye.

Appendix B

1. I was accepted for enrollment in the _____ program
(degree, e.g., Ph.D.)
in _____ at Virginia Tech but did not enroll because:
(program area, e.g., Electrical Engineering
(Check all that are applicable.)

_____ a. I may seek to enroll in another year.

_____ b. Virginia Tech did not have the specific program that I sought. (Please indicate your program interests.) _____

_____ c. I am seeking more of a part-time degree program than seems to be available at Virginia Tech.

_____ d. I was not able to obtain sufficient financial assistance from Virginia Tech for enrolling in graduate school. I _____ was _____ was not offered an assistantship or fellowship at Virginia Tech.

_____ e. I was not able to obtain sufficient financial assistance from sources outside of Virginia Tech.

_____ f. I enrolled at another school. (Please indicate the school.)

_____

I enrolled at the above school because:

_____ The curriculum is better suited to my educational goals.

_____ I secured a better financial aid package, including:

_____ assistantship _____ fellowship

_____ tuition waiver _____ loan

_____ other assistance: _____

_____ I preferred the location of the school.

_____ Other reason: _____

_____

I am enrolled _____ full-time _____ part-time.

_____ g. I decided that I should stay with my current job or situation rather than enroll in graduate school. Job title: _____

_____ h. Other reason that more accurately describes why you did not enroll at Virginia Tech:

_____

_____

2. Was your admission application to Virginia Tech processed satisfactorily? _____ Yes _____ No

If no, please elaborate: _____

_____

3. Current state of residence: _____

4. Country of citizenship: _____

If not a U.S. citizen, are you a permanent resident? _____

5. Ethnic group: ___ White ___ Black ___ Hispanic ___Asian or Pacific Islander
___ American Indian or Alaskan Native

6. Graduation year of last degree: _____

Thank you very much for responding. Always feel free to contact the Graduate School or the Admissions Office if we can provide additional information regarding graduate programs at Virginia Tech.

Other comments: _____

_____

_____

_____

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